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*Stephen Hordley*

Dated

13 March 2002

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Patent 1977  
(Rule 16)

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# Request for grant of a patent

(See the notes on the back of this form. You can also get an explanatory leaflet from the Patent Office to help you fill in this form)

The Patent Office

Cardiff Road  
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## 1. Your reference

10294P1 GB2/MND

## 2. Patent application number

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9916755.3

17 JUL 1999

## 3. Full name, address and postcode of the or of each applicant (underline all surnames)

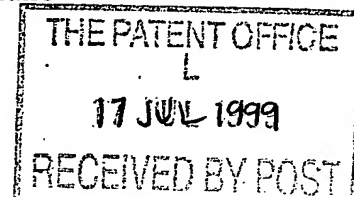
Reckitt & Colman Products Limited  
One Burlington Lane  
London  
W4 2RW  
UNITED KINGDOM

Patents ADP number (if you know it)

If the applicant is a corporate body, give the country/state of its incorporation

681429001

ENGLAND



## 4. Title of the invention

Improvements in or relating to  
Organic Compositions

## 5. Name of your agent (if you have one)

"Address for service" in the United Kingdom to which all correspondence should be sent (including the postcode)

Elizabeth A Dickson  
Reckitt & Colman plc  
Group Patents Department  
Dansom Lane  
HULL  
HU8 7DS  
UNITED KINGDOM

Patents ADP number (if you know it)

7517675001

## 6. If you are declaring priority from one or more earlier patent applications, give the country and the date of filing of the or of each of these earlier applications and (if you know it) the or each application number

Country	Priority application number (if you know it)	Date of filing (day / month / year)
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## 7. If this application is divided or otherwise derived from an earlier UK application, give the number and the filing date of the earlier application

Number of earlier application	Date of filing (day / month / year)
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## 8. Is a statement of inventorship and of right to grant of a patent required in support of this request? (Answer 'Yes' if:

YES

- a) any applicant named in part 3 is not an inventor, or
  - b) there is an inventor who is not named as an applicant, or
  - c) any named applicant is a corporate body.
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9. Enter the number of sheets for any of the following items you are filing with this form. Do not count copies of the same document

Continuation sheets of this form

Description	10
Claim(s)	2
Abstract	1
Drawing(s)	3

10. If you are also filing any of the following, state how many against each item.

Priority documents

Translations of priority documents

Statement of inventorship and right to grant of a patent (Patents Form 7/77)

Request for preliminary examination and search (Patents Form 9/77) One

Request for substantive examination (Patents Form 10/77) One

Any other documents (please specify) FS2

11. I/We request the grant of a patent on the basis of this application.

Signature *gm=laight* Date 14 July 1999

Elizabeth A Dickson

12. Name and daytime telephone number of person to contact in the United Kingdom Elizabeth A Dickson (01482) 582909

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DUPLICATE

## Improvements in or relating to Organic Compositions

The present invention relates to a method for preventing the habituation of a fragrance composition.

5 It is generally known to use an electrical device to evaporate a perfume and/or fragrance composition into a space, particularly a domestic space e.g. a living room, to provide a pleasant aroma. There are a variety of such devices on sale, for example the Airwick Diffuseur Actif  
10 (manufactured by Reckitt & Colman) or the Ambi-Pur fragrance diffuser (manufactured by Sara Lee). Generally they consist of a perfume or fragrance source, an electrical heater and a power supply. By the application of heat to the perfume or fragrance source, there will be  
15 a constant supply of the perfume or fragrance to the space in which the device is placed.

The problem with this arrangement is that a person occupying the space will quickly become accustomed to the perfume or fragrance and, after a while, will not  
20 perceive the fragrance strength as being as intense. This is a well-known phenomenon called habituation. A solution to this problem has been sought.

According to the invention there is provided a method for preventing the habituation of a fragrance  
25 composition, which method comprises providing to a space which it is desired to fragrance a periodic supply of the fragrance composition.

According to a first preferred embodiment of the method of the invention, two or more fragrance  
30 compositions are provided to the space which it is desired to fragrance.

According to the invention there is further provided a method wherein a continuous supply of a first fragrance composition and a periodic supply of a second fragrance  
35 composition are provided to the space which it is desired to fragrance.

According to the invention there is further provided a method wherein a continuous supply of a first fragrance composition and a periodic supply of a second fragrance composition are provided to the space which it is desired to fragrance.

Each fragrance composition is preferably in the form of a liquid. Suitable solvents for the fragrance components include water, alkyl alcohol e.g. isopropanol or ethanol, an ether (such as monopropylene glycol methyl ether, dipropylene glycol methyl ether and/or tripropylene glycol methyl ether, carbitol or a glycol (such as propyleneglycol or dipropyleneglycol).

When the fragrance composition is in the form of a liquid, it is generally supplied in (or its source is) a container, e.g. a bottle, filled with the liquid and provided with a wick means. A suitable container is one made from a water/organic solvent insoluble material which is optionally either a plastics material for example polypropylene, HDPE (high density polyethylene), PET or Borex or, preferably, glass. Suitable wicks are made from natural or synthetic fibrous materials such as cotton, fibreglass, mineral fibres, cellulose ceramic, graphite or polyester.

Each fragrance composition may additionally comprise a malodour counteractant and/or an insecticide. Preferably it is the first fragrance composition which may further comprise a malodour counteractant and/or an insecticide.

A suitable fragrance composition for use in the invention comprises one or more fragrant components such as cedarwood, oil, sandalwood oil, bergamot, Bulgarian rose oil, patchouli, myrrh, clove leaf oil, linalol, ethyl alcohol, terpineol, menthol,

citronellal, and/or phenyl ethyl alcohol.

The fragrance compositions are preferably chosen such that when two or more fragrance compositions are used they contrast with one another or have different notes. This is particularly important when one fragrance composition is supplied continuously and one is supplied periodically to prevent cross habituation. This is a preferred feature because if the second fragrance composition is too similar to the first fragrance composition, the periodic supply of the second fragrance composition will not act to counteract the effects of habituation.

The advantage of the invention is that the problem of habituation is alleviated. In carrying out the method of the invention a periodic supply of a fragrance composition is supplied to a space which it is desired to fragrance. If the composition is not pulsed, then a person present in the space would quickly become accustomed to the fragrance composition. In other words the person will believe that the strength of the fragrance composition is decreasing with time. However, when the fragrance composition is periodically supplied the perceived decrease in the strength of the fragrance composition is halted. The same effect is found with the continuous supply of a first fragrance and a pulsed supply of a second fragrance with the strength of the first fragrance being perceived as stronger than it was before the second fragrance composition is supplied.

A suitable deodorant for use in the present invention is one or more aroma and/or non-aroma chemicals which are known to have an action in reducing the perception of the intensity of malodours,

e.g. unsaturated esters, ketones, aldehydes, and/or a fragrant material e.g. citronellal and/or cedarwood oil (which is known to counteract the perception of tobacco malodour).

5       A suitable insecticide for use in the present invention comprises one or more natural insecticides such as a pyrethroid, nicotinoid, rotenoid and/or one or more synthetic insecticides e.g. tetramethrin, bioallethrin, allethrin, phenthrin, a dinitrophenol, 10   an organothiocyanate, benzene hexachloride, a polychlorinated cyclic hydrocarbon (e.g. heptachlor, aldrin and/or telodrin), and/or an organophosphorous (e.g. tetraethyl pyrophosphate).

Each fragrance composition may further comprise 15   an antioxidant such as tocopherol, ascorbyl palmitate, butylated toluene, ascorbic acid, tert-butyl hydroquinone, beta carotene and/or a gallate. In addition each active agent may optionally comprise a UV stabiliser, such as Uvinol 400.

20       In carrying out the present invention, the fragrance composition is generally pulsed from a device which includes heating means which is adapted to supply heat periodically to the composition which is to be pulsed and thereby vaporise it. When two 25   fragrance compositions are used, both compositions may be pulsed by the use of periodic heating means to the two compositions. Alternatively, if one fragrance composition is to be supplied continuously then the heating means will supply heat continuously to this 30   composition to vaporise it continuously. The other fragrance composition will be heated only periodically to provide pulsed evaporation.

The heating means is optionally either a positive temperature coefficient-type (PTC-type) electrical



heater or a resistance-based electrical heater. It is preferably a PTC-type electrical heater. The heat output of the heating means is preferably suitable to give an operating temperature of from 50 to 120°C, more preferably from 60 to 80°C, most preferably about 70°C.

Each fragrance composition will generally be supplied in a container provided with a wick means. The heating means will then preferably be in the form of a coil or a ring around the wick means. Preferably the heating means is provided with a control which regulates the supply of heat to the fragrance compositions. This is in order that the evaporation rate of the fragrance compositions may be controlled.

Alternatively, a combined fragrance composition may be supplied in a single container with a wick means with the fragrance which is to be pulsed having a higher vaporisation temperature than the fragrance which is to be continuously released. Supply of heat to the wick means will vaporise the first fragrance which is to be supplied continuously. The second fragrance may then be vaporised by periodically increasing the heat supply to the wick means.

The device according to the invention is preferably an electrical device. The electrical power supply is optionally either in the form of one or more electrical batteries or, preferably, the electrical device is adapted to be connected to an electrical power supply, e.g. a domestic mains socket.

The device according to the invention is preferably provided with an actuating means, e.g. a switch, to control operation of the device.

The periodic supply of heat to release the fragrance composition is preferably achieved by

providing the device and particularly the heating means with a control means. The control means is preferably in the form of an electronic circuit, e.g. a printed circuit board. The control means is preferably an astable electronic timing circuit for example one based on a 555 integrated circuit or an inverting Schmitt trigger (e.g. a 74LS14 integrated circuit). The control means is preferably arranged such that that power supply is connected to the heating means for a short period of time at a frequency of from 1 to 5 times an hour. This short period of time is preferably from 15 seconds, more preferably from 30 seconds to, preferably, 15 minutes, more preferably 2, 4, 6, 8 or 10 minutes with appropriate intervals of time therebetween.

The present invention will be further described with reference to the accompanying drawings in which:-  
Figure 1 illustrates a device for use in the method of the present invention which is adapted to supply a first fragrance continuously and to pulse a second fragrance;

Figure 2 illustrates diagrammatically an electrical circuitry used in respect of the device of Figure 1; and

Figure 3 illustrates a device for use in the method of the present invention which is adapted to pulse with a single fragrance.

Referring now to Figure 1, there is shown a device for use in the method of the invention which comprises a housing 1 which is shown in section. Housing 1 is made from a substantially non-deformable heat-resistant material such as a thermo plastic resin containing a flame retardant agent, e.g. polypropylene, polyethylene and/or an acrylonitrile/

butadiene/styrene copolymer. Housing 1 is adapted to support containers 2a and 2b and heating means 3a and 3b. Heating means 3a and 3b are annular electrical heaters and are arranged vertically above containers 2a and 2b. Containers 2a and 2b are made from a water/organic solvent insoluble material. Container 2a is filled with a first fragrance composition and container 2b is filled with a second fragrance composition. Containers 2a and 2b are provided with wick means 8a and 8b which contact the first and second fragrance compositions, respectively. Wick means 8a and 8b are made from natural or synthetic fibrous materials and extend from the bottom of containers 2a and 2b, substantially coaxially through annular heating means 3a and 3b to a point vertically just above the heating means 3a and 3b. Thus the wick means 8a and 8b cause the fragrance compositions to flow from the containers 2a and 2b to the levels of the heating means 3a and 3b. Housing 1 has holes 4a and 4b which are disposed substantially vertically above containers 2a and 2b, respectively. Holes 4a and 4b allow vapour communication between the wick means 8a and 8b and the outside (ambient environment). Housing 1 is also adapted to support control means 5 and is adapted to allow electrical conductor means 6a, 6b, 6c and 6d to link control means 5 with heating means 3a and 3b. Housing 1 is further adapted to support actuating means 7 and is also adapted to allow actuating means 7 to be electrically connected to the control means 5. Housing 1 is also adapted to provide control means 5 with a source of electrical power (not shown). Actuating means 7 is moveable between a first operating position and a second non-operating position. Control means 5 is arranged so that when

the device is in operation (i.e. when circuit 5 is connected to a source of electrical power and actuating means 7 is in the first operating position), electrical power is supplied continuously to heating means 3a and periodically to heating means 3b. The electrical power provided continuously to the heating means 3a cause the heating means 3a to heat the wick means 8a which is saturated with the first fragrance composition so that the fragrance composition vaporises. The vapour of the first fragrance composition produced by heating the wick means 8a is able to escape to the ambient environment through holes 4a.

Referring now to Figure 2, there is shown an electrical circuit 10 suitable for use with the device of Figure 1. The electrical circuit comprises connectors 11a and 11b which allow the electrical circuit to be connected to an electrical power supply, an actuating means 7, heating means 3a and 3b, and a control means 5.

Referring to Figure 3, there is shown a side projection of a device according to the invention which comprises a housing 1 which supports a single container 2a and an actuating means 7. Container 2a is filled with a fragrance composition and is provided with a wick means 8a. In the embodiment of the invention depicted in Figure 3, connecting means 9a, 9b and 9c corresponding to the pins of an electrical plug enable the device to be provided with a source of electrical power. The connecting means 9a, 9b and 9c enable the device to fit into a UK domestic mains socket. Thus connecting means 9a is an earth (ground) pin, connecting means 9b is a neutral pin and connecting means 9c is a live pin. The arrangement of

the pins and the shape of the rear section of the housing may be changed according to the local design of mains sockets. The device illustrated in Figure 3 may be used with an electrical circuit similar to that  
5 illustrated in Figure 2, but with a single heating means.

The present invention will be further described with reference to the following non-limiting Examples.

10

EXAMPLE 1

An experiment was carried out to assess the perceived strength of a continuous core fragrance (ginger flowers) boosted by pulses of another  
15 fragrance (pomme) for 6 minutes at 15 minutes intervals. The test was conducted in 28m<sup>3</sup> temperature and humidity controlled booths, (20°C and 55 R/H).

A panel of 13 testers was asked to assess the perceived fragrance strength of the continuous core  
20 fragrance over a period of 42 minutes, the assessment being rated every minute according to a preordained scale. The perceived fragrance of the ginger flowers was constant for the duration of the assessment.

25

EXAMPLE 2

An experiment similar to that described in Example 1 was compared with a control experiment in which the core fragrance (ginger flowers) was supplied  
30 to the booths and an experiment in which the core fragrance was applied continuously with pulses of pomme fragrance. Pulsing with the pomme fragrance for two or six minute at fifteen minute intervals with constant ginger flowers fragrance produced a higher

perceived strength then constant ginger flowers alone.

The experiment with six minute pulsing showed a lesser decline in perceived fragrance than pulsing for two minutes.

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### EXAMPLE 3

Following the general protocol of Example 1, an experiment was carried out to assess the perceived strength of a single fragrance (freesia and magnolia) pulsed for two minutes with a rest period of two minutes between the end of one pulse and the beginning of the next. The assessment was carried out in the manner as described in Example 1 for a total of 46 minutes.

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15

The pulsing maintained the perceived fragrance strength at a constant level throughout the duration of the assessment.

20

CLAIMS:

1. A method for preventing the habituation of a fragrance composition, which method comprises providing to a space which it is desired to fragrance a periodic supply of the fragrance composition.

2. A method as claimed in claim 1 wherein periodic supplies of two or more fragrance compositions are provided to the space which it is desired to fragrance.

3. A method as claimed in claim 1 wherein a continuous supply a first fragrance composition and periodic supply of a second fragrance composition are provided.

4. A method as claimed in any one of claims 1 to 3 wherein the periodic supply of the fragrance composition or compositions is at a frequency of from 1 to 5 per hour.

5. A method as claimed in any one of the preceding claims wherein the pulsing time for the periodic supply is every 2, 4, 5, 6, 8 or 10 minutes with intervals between the pulses of the same or different times.

6. A method as claimed in any one of the preceding claims wherein the periodic supply of the fragrance composition to the space is provided by periodically heating the composition in order to vaporise it.

7. A method as claimed in any one of the

preceding claims wherein the fragrance composition or fragrance compositions optionally comprises a deodorant and/or an insecticidal compound.

5           8.    A method as claimed in any one of the preceding claims wherein the fragrance composition or fragrance compositions is/are in the form of a liquid.

10           9.    A method as claimed in claim 8 wherein each fragrance composition is supplied in a container provided with wick means.

15           10.   A method as claimed in claim 9 wherein a heating means surrounds the wick means of each container.

            11.   A method as claimed in claim 10 wherein the heating means is/are operated electrically.

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ABSTRACT

IMPROVEMENTS IN OR RELATING TO ORGANIC COMPOSITIONS

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The present invention relates to a method for preventing the habituation of a fragrance composition, which method comprises providing to a space which it is desired to fragrance a periodic supply of the  
10 fragrance composition.

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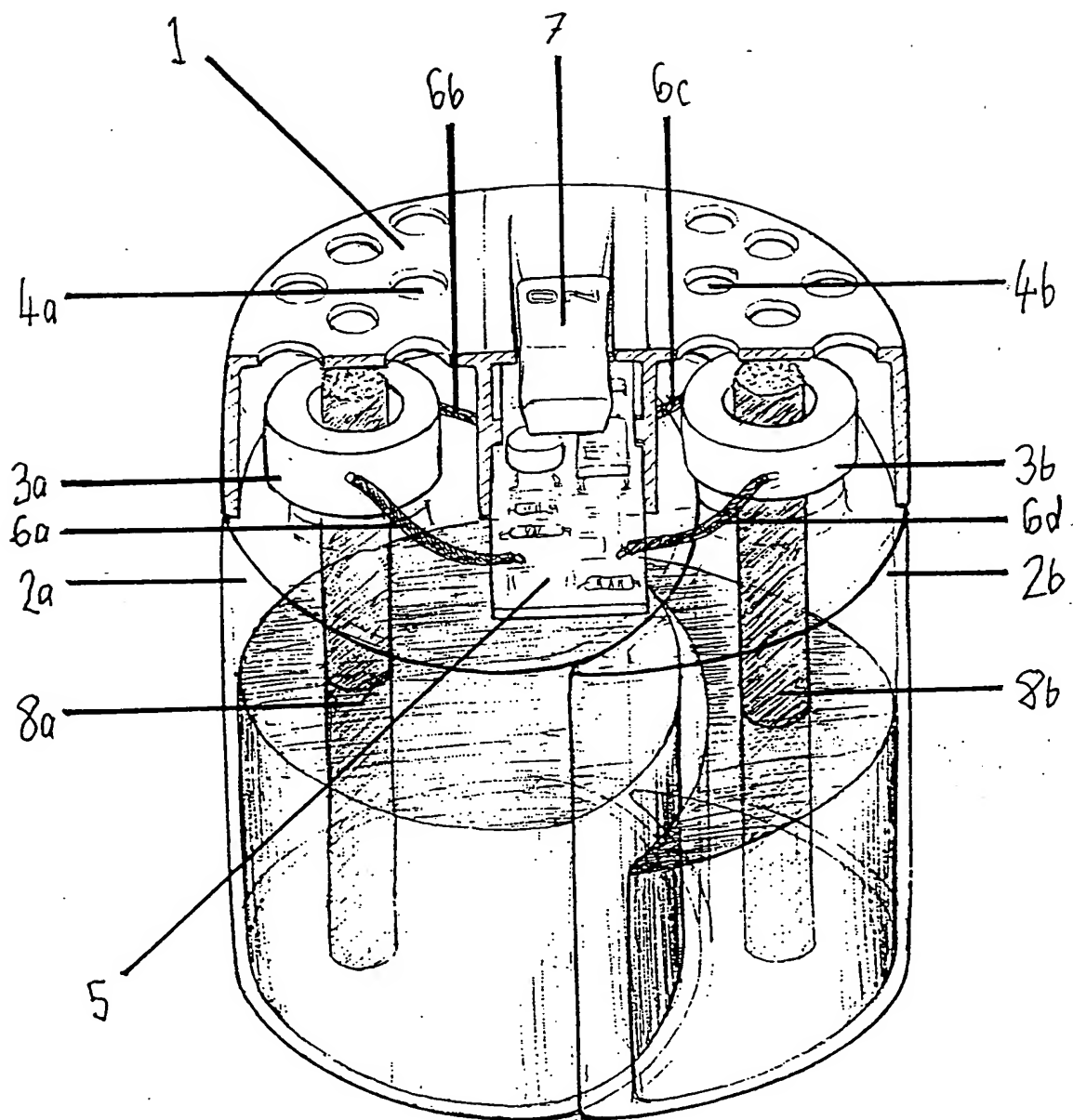


FIGURE 1

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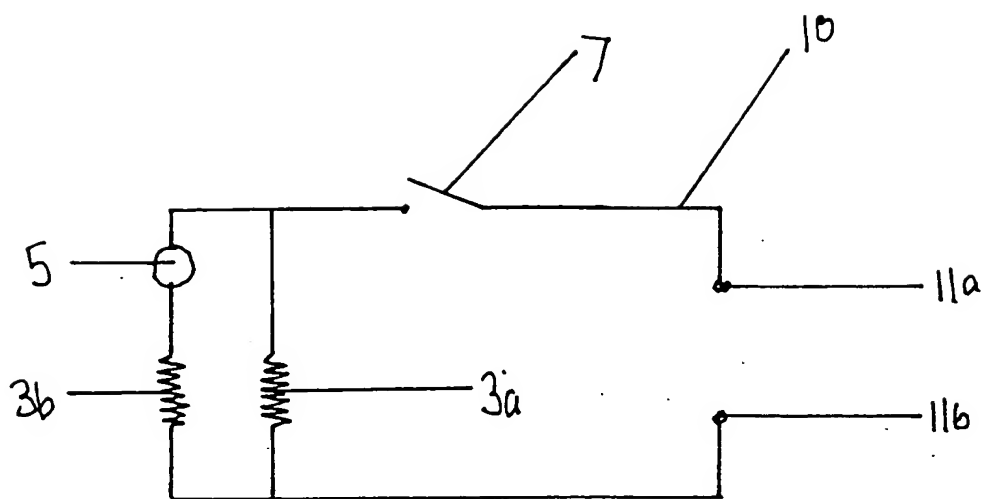
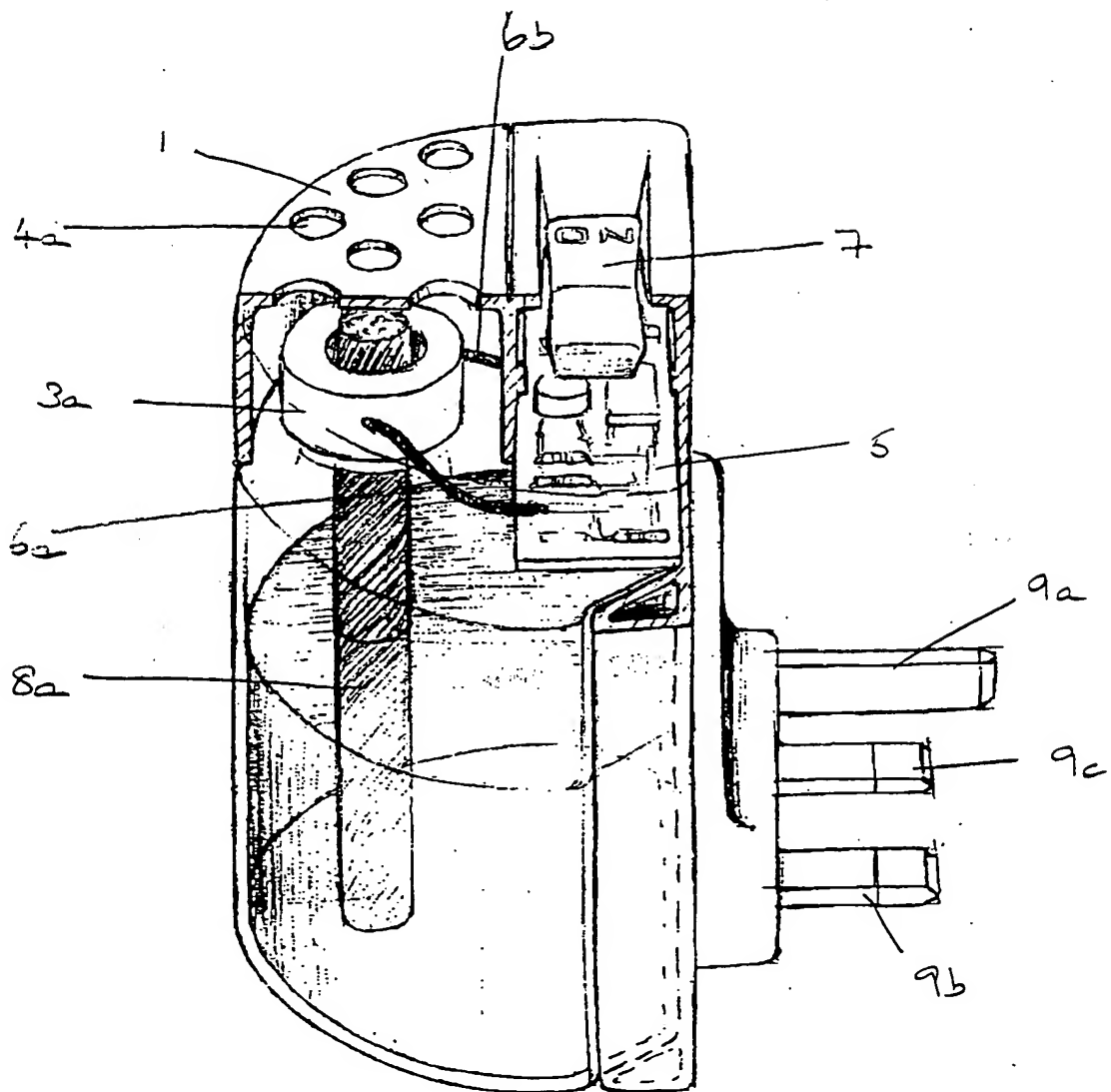


FIGURE 2

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FIGURE 3



Title: Fragrance Emitting Device  
Inventor(s) Paul Howard WHITEBY *et al.*  
Atty. Doc. No.: 10/047,256 Cust. No.: 000570  
Atty. Doc. No.: 2010660.0055/055US (10931P1)

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